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(51) INT CL<sup>a</sup>

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E1J JGH

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UK CL (Edition K) E1J JGH

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(54) Window pane condensation drainage device

(57) A drainage device comprises a channel section member (10) and two stop-ends (12) of corresponding cross-section. An assembly of the member (10) and stop-ends (12) is fixed to the bottom interior edge of a window pane (36). The member (10) serves to collect condensation which may form on, and run off, the interior of the window pane (36). The stop-ends (12) each have a drainage pipe (26) through which collected water is drained e.g. via flexible PVC tubing (33) to the outside of the window frame. To cope with the drainage of condensation from wide windows a bridging member with its own drainage pipe can be spliced into the middle of the member (10).

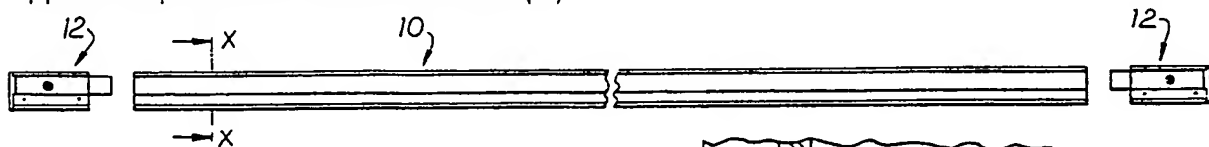


Fig. 1

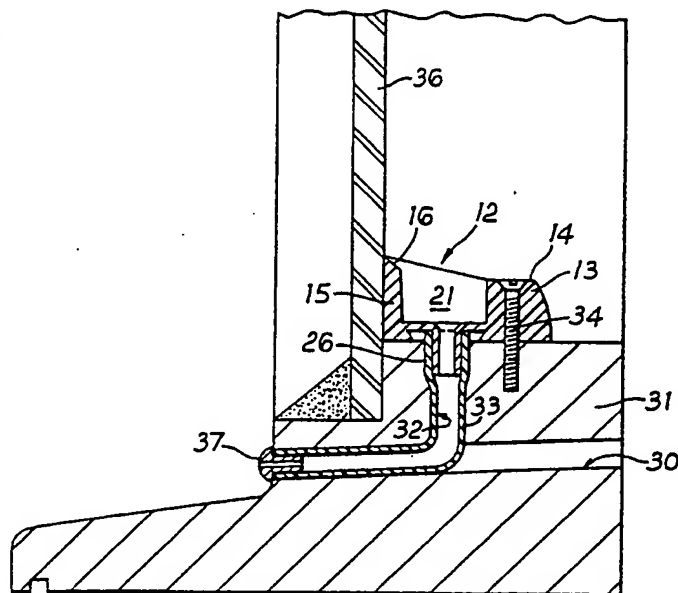


Fig. 9

GB 2 230 042 A

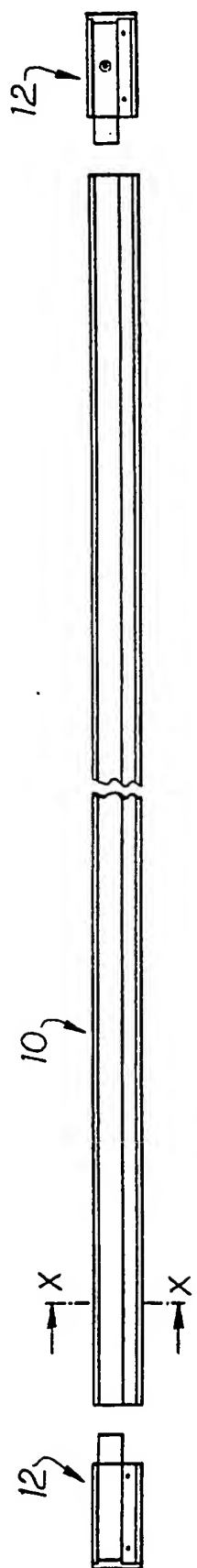


Fig. 1

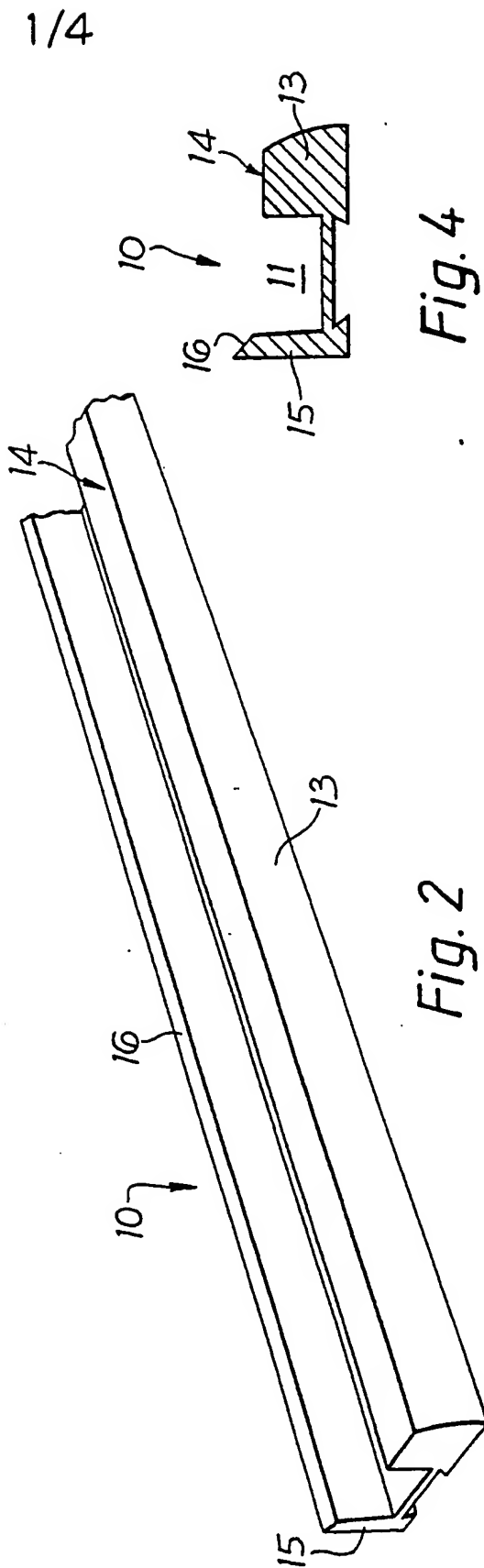


Fig. 2

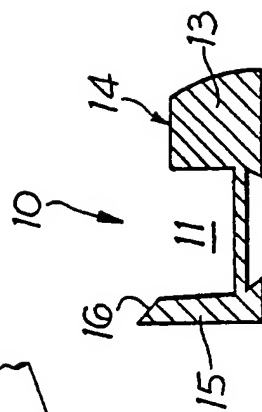


Fig. 4

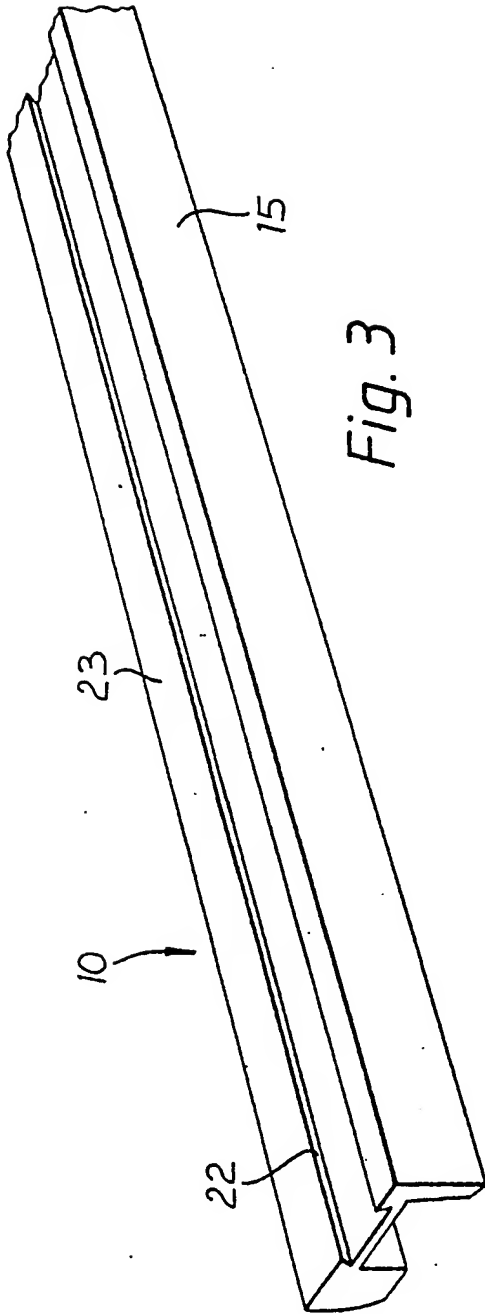


Fig. 3

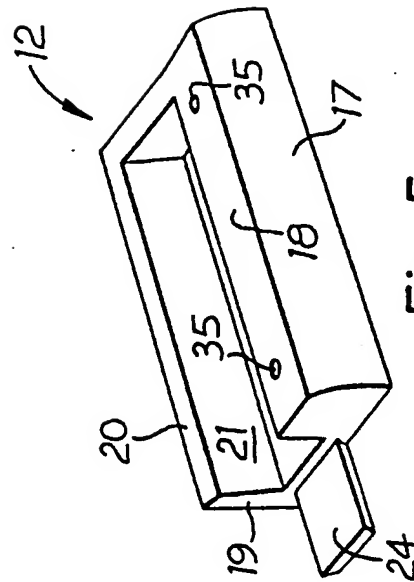


Fig. 5

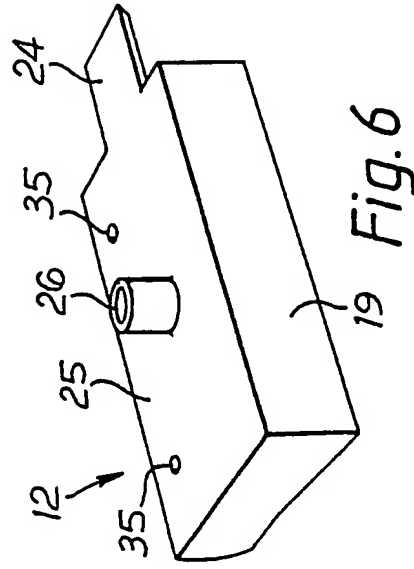
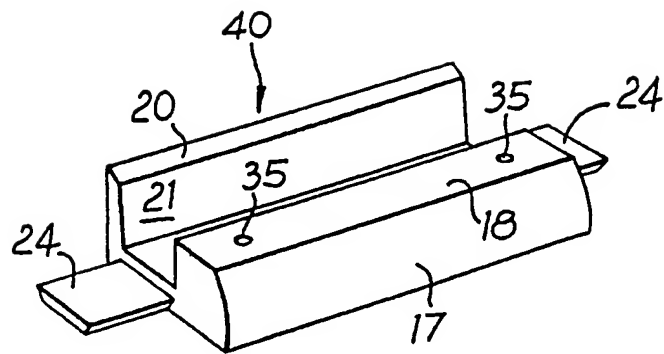
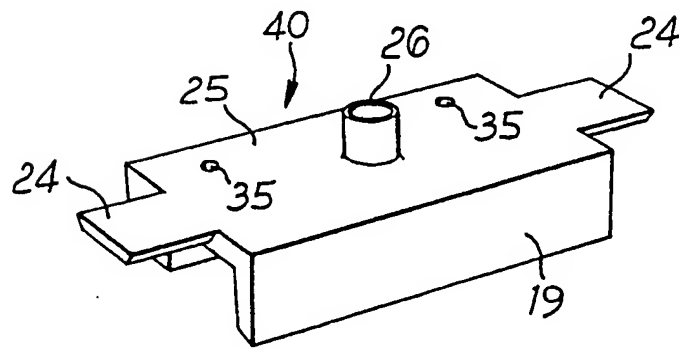


Fig. 6

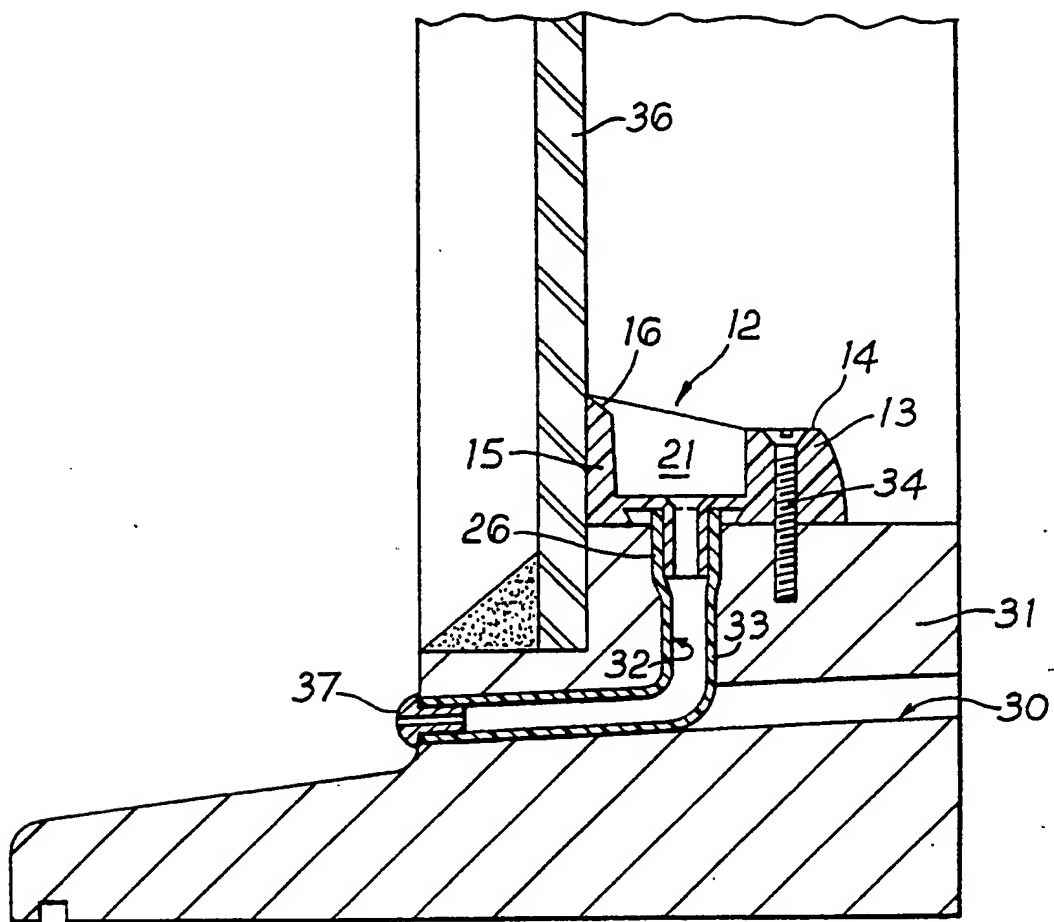
3/4



*Fig. 7*



*Fig. 8*

*Fig. 9*

WINDOW PANE CONDENSATION DRAINAGE DEVICE

This invention concerns the drainage of condensation from window panes and more particularly to a device for such drainage.

In European Patent No. 0063964 I disclose a device for the drainage of condensation from a window pane. In an embodiment (shown in Figs. 1 and 2) the device is in the form of a rectangular U-section channel member having a plurality of drainage outlets spaced along its base, each outlet being associated with a short length drainage pipe. The channel member is sunk in a rebate in the bottom window frame member so as to be adjacent the inner surface of the window pane. The drainage pipes are accommodated in apertures drilled at intervals in the base of the rebate and each attached to a short length of flexible pvc tubing extending outwardly of the window frame through an aperture bored from the inside to the outside of the frame member. Any condensation formed on the inside surface of the window pane will run downwardly into the channel member from which it will drain via the drainage outlets and the pvc tubing.

Figure 3 of European Patent No. 0063964 shows a modified channel member which is seated on top of the lower window frame member rather than being rebated.

The main object of the present invention is to improve upon the Figure 3 embodiment of E.P. No. 0063964. In that embodiment the flat rear wall of the channel member locates against the glass pane whereas the front of the member is quadrant shaped for decoration purposes. The positioning of the drainage pipes and flexible tubes is analogous to the embodiment of Figs. 1 and 2. This channel member may be supplied in standard lengths to be cut to size for the particular window on which it is to be used. It is fixed to lower window frame member by means of screws secured through the quadrant shaped front. Stop ends may be supplied with the channel member for positioning at the ends of the member when it has been cut to length to contain water in the channel.

One of the disadvantages of the latter said existing embodiment is the waste of channel member involved in cutting the member to length. Another disadvantage is the fixing of the stop ends can be cumbersome. Yet another disadvantage is the need for the drilling of several apertures in the frame member to accomodate the drainage pipes.

It is an object of the present invention to propose a window pane condensation drainage device which overcomes or mitigates the aforesaid disadvantages.

With this object in view the present invention provides a window pane condensation drainage device comprising a channel section member and a pair of stop ends frictionally engageable with the channel section and each having a drainage formation, conveniently of pipe form, providing a respective drainage exit from the channel section member.

Advantageously, the cross-section of both of the stop ends corresponds with the cross-section of the channel section member.

For their frictional engagement the channel section member has an inwardly diverging groove along the length of its base and each of the stop ends has a correspondingly shaped tongue extending from its confronting end.

The invention will be further described by way of example with reference to the accompanying drawings, in which:-

Fig. 1 is a plan view of a preferred embodiment of the window pane condensation drainage device of the present invention;

Fig. 2 is an enlarged perspective view of part of a channel section member which is a component of the



embodiment of the device shown in Fig. 1;

Fig. 3 is a view of the underneath of the channel section member shown in Fig. 2;

Fig. 4 is a cross-section on the line X-X of Fig. 1;

Fig. 5 is an enlarged perspective view of a stop ends which is a component of the embodiment of the device shown in Fig. 1;

Fig. 6 is a perspective view of the underneath of the stop ends shown in Fig. 5;

Fig. 7 is an enlarged perspective view of a channel section bridging member being an optional component of the embodiment of the device shown in Fig. 1;

Fig. 8 is a perspective view of the underneath of the bridging member shown in Fig. 7; and

Fig. 9 is cross-sectional view of a window frame assembly incorporating the preferred embodiment of the device of the invention.

The illustrated window pane condensation drainage device comprises an elongate channel section member 10, having a rectangular U-shaped channel 11, and two stop ends 12 having a cross-section which corresponds to the cross-section of the member 10.

The channel section member 10 has a front wall 13, which is curved and has a truncated or flat top 14, and a rear wall 15 which is higher than the front wall 13, which is tapered on its side facing the channel 11 and which has a sharply tapered top surface 16.

Both of the stop ends 12 have a U-shaped channel 21 defined by a front wall 17 which is curved and has a truncated or flat top 18, and a rear wall 19 which is higher than the front wall 17 and which has a sharply tapered top surface 20.

The stop ends 12 friction fit to respective ends of the member 10. For this purpose the member 10 has an inwardly diverging groove 22 along the entire length of its base 23 and each of the stop ends 12 has a correspondingly shaped tongue 24 extending from its open end.

Each stop end 12 has on its base 25 a water drainage pipe 26 (see Fig. 6) providing a respective

drainage aperture for the member 10 when the stop ends 12 are fitted to the member 10.

Figure 9 shows the positioning of the drainage device on a window frame.

First of all two apertures 30 are bored through lower frame member 31 of the window, one adjacent each end of the member 31. Apertures 32 are then drilled on the inside of the member 31 to meet the apertures 30.

Lengths of flexible PVC tubing 33 are then inserted through each aperture 30 and the inner end drawn upwards through aperture 32 by any suitable implement.

The channel section member 10 is cut to length and the stop ends 12 fitted thereto. The drainage pipes 26 of the stop ends 12 are now inserted in the lengths of tubing 33 and the member 10 and the connected stop ends 12 are secured to the lower frame member 31 by means of screws 34 being inserted through screw holes 35 in the stop ends 12.

The rear wall 15 of the member 10 and the rear wall 19 of both stop ends 12 firmly abut the inside of the window pane 36 via a silicon sealant (not shown).

Any condensation formed on the inside surface of the window pane 36 will run downwardly on to the tapered top surface 16 of the member 10 and the tapered top surface 20 of each stop end 12 and collect in the channels 11 and 21 and will drain therefrom through the drainage pipe 26 into the tubing 33 and via a drainage plug 37 in the end of the tubing 33 to the outside of the window.

It will be appreciated from the foregoing that the member 10 does not have drainage apertures, drainage of water therefrom being taken care of by the stop ends 12.

In order to cope with the drainage of condensation from very wide windows the present invention also provides for the use of an optional component in the form of a channel section bridging member 40 which is illustrated in Figs. 7 and 8.

The bridging member 40 is similar to the stop ends 12 except that both its ends are open and it has a tongue 24 extending from both ends. It has one drainage pipe 26 and two screw holes 35.

It will be appreciated that the bridging member 40 can be spliced into the centre of a long channel section member 10 which has on each end a stop end 12. It provides extra water drainage capacity for the member 10

and firmer security to the frame member 31.

The member 10 is made of extruded plastics and the stop ends 12 and the bridging member 40 are each of plastics and injection moulded in one piece.

CLAIMS

1. A window pane condensation drainage device comprising a channel section member and a pair of stop ends frictionally engageable with the channel section each stop-end having a drainage formation providing a respective drainage exit from the channel section member.
2. A device according to claim 1, wherein the drainage formation is a projecting pipe.
3. A device as claimed in claim 1 or claim 2 wherein the cross-section of the stop ends correspond with the cross-section of the channel section member.
4. A device as claimed in any preceding claim wherein the channel section member has an inwardly diverging groove along the length of its base and each of the stop ends has a correspondingly shaped tongue extending from its confronting end.
5. A device as claimed in any preceding claim wherein there is provided an optional component in the form of a channel section bridging member with open ends and a tongue extending from both ends to enable the bridging member to be spliced into the centre of the channel section member.

6. A window pane condensation drainage device substantially as hereinbefore described with reference to and as illustrated in the accompanying drawings.